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In re Application of:

Shiro KAMIYAMA et al.

Appln. No. 09/719,424

Group Art Unit: 1714

Filed: December 12, 2000

Examiner: Callie E. Shosho

For: RESIN COMPOSITION FOR ELECTROSTATIC COATING

DECLARATION

Honorable Commissioner of Patents and Trademarks

5 Washington, D.C. 20231

Sir :

I, Hiromichi AOKI, hereby declare that:

1) I am one of the inventors of the present
invention; and

10 2) the experiments given below were carried out
under my general direction and supervision.

Experiment 1

A resin composition as prepared in Example 1 of the present specification was used, and its physical properties were measured in the same manner as in Example

5 1.

Components used herein are as follows:

(A) Rubber-reinforced aromatic vinyl resin

A-1: 20 parts by weight (solid content) of polybutadiene latex (average particle diameter: 0.35 μ m; gel content: 80 %), 55 parts by weight of styrene and 25 parts by weight of acrylonitrile were polymerized by a known emulsion polymerization method. The polymer latex thus obtained was subjected to salting-out, dehydration and drying treatments to give A-1.

15 (B) Polyamide elastomer

B-1: polyetherester amide ("PELESTAT IOS-6321", a product of Sanyo Chemical Industries, Ltd.).

(C) Modified vinyl polymer

C-1: 70 parts by weight of styrene, 27 parts by weight of acrylonitrile and 3 parts by weight of acrylic acid were polymerized by a known emulsion polymerization method. The polymer latex thus obtained was subjected to salting-out, dehydration and drying treatments to give C-1.

(D) Alkali metal salt

25 D-1: sodium dodecylbenzenesulfonate.

Experiment 2

A resin composition having the same components as that prepared in Experiment 1 was used except that sodium dodecylbenzenesulfonate (D-1) was used in a proportion of 5 wt.% and polyetherester amide (B-1) was used in a proportion of 15 wt.%. The physical properties of this resin composition were measured in the same manner as in Experiment 1.

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Experiment 3

A resin composition made of the same components as that prepared in Experiment 1 was used except that sodium dodecylbenzenesulfonate (D-1) was replaced with potassium chloride. The physical properties of this resin composition were measured in the same manner as in Experiment 1.

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Experiment 4

A resin composition consisting of the same components as that prepared in Experiment 1 was used except that sodium dodecylbenzenesulfonate (D-1) was replaced with sodium chloride. The physical properties of this resin composition were measured in the same manner as in Experiment 1.

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Experiment 5

A resin composition having the same components as the one prepared in Experiment 1 was used except that sodium dodecylbenzenesulfonate (D-1) was used in a proportion of 0.1 wt.% and polyetherester amide (B-1) was used in a proportion of 19.9 wt.%. The physical properties of this resin composition were measured in the same manner as in Experiment 1.

Results

The following table shows the component proportions and physical properties of the resin compositions used Experiments 1 to 5.

	Experiment				
	1	2	3	4	5
-Proportions- (wt.%)					
Component A: A-1	70	70	70	70	70
Component B: B-1	18	15	18	18	19.9
Component C: C-1	10	10	10	10	10
Component D:					
D-1: sodium dodecylbenzenesulfonate	2	5	-	-	0.1
potassium chloride	-	-	2	-	-
sodium chloride	-	-	-	2	-
-Physical Properties-					
Impact Resistance (kg·cm/cm)	28	26	26	27	27
Fluidity (g/10 min)	36	40	34	34	35
Rigidity (kg/cm ²)	1.8x10 ⁴	2.0x10 ⁴	1.8x10 ⁴	1.8x10 ⁴	1.8x10 ⁴
Molding Shrinkage(%)	0.6	0.5	0.6	0.6	0.6
Surface Resistivity (Ω)	2.0x10 ⁹	7.2x10 ⁸	5.0x10 ¹⁰	7.0x10 ¹⁰	1.0x10 ¹¹
Appearance	A	A	A	A	A
Weight of Coating (g)	1.02	1.18	0.78	0.76	0.56
Adhesion: Condition 1	100/100	100/100	100/100	100/100	100/100
Condition 2	100/100	100/100	100/100	100/100	100/100

Analysis

The resin composition of Experiment 1 containing sodium dodecylbenzenesulfonate in a proportion of 2 wt.% and the resin composition of Experiment 2 containing sodium dodecylbenzenesulfonate in a proportion of 5 wt.% both had excellent physical properties, and articles formed from these resin compositions had excellent

appearance, received a large amount of electrostatically applied coating, and also exhibited good adhesion of the coating.

In contrast, articles formed from the resin composition of Experiment 3, containing potassium chloride in place of sodium dodecylbenzenesulfonate, or the resin composition of Experiment 4, containing sodium chloride, had only a small amount of coating applied by electrostatic coating, and accordingly did not form a good electrostatic coating film.

Moreover, articles formed from the resin composition of Experiment 5 containing sodium dodecylbenzenesulfonate in a proportion of 0.1 wt.% had a small amount of coating applied by electrostatic coating and did not form a good electrostatic coating film.

As evident from the above results, to obtain a formed article having a good electrostatic coating film, with excellent physical properties, it is important to use a resin composition containing sodium dodecylbenzenesulfonate in a proportion of 2 to 5 wt.%.

I, the undersigned, declare that all statements made herein of my own knowledge are true and that all statements made on information and belief are believed to be true; and further that these statements were made with
5 the knowledge that willful false statements and the like so made are punishable by fine or imprisonment, or both, under section 1001 of Title 18 of the United States Code and that such willful false statements may jeopardize the validity of the application or any patent issuing thereon.

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Date:

Hiromichi AOKI